UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,140	10/09/2001	Ralph Thomas Hoctor	RD-27,855	7372

41838 7590 02/03/2006

GENERAL ELECTRIC COMPANY (PCPI)
C/O FLETCHER YODER
P. O. BOX 692289
HOUSTON, TX 77269-2289

EXAMINER	
ZEWDU, MELESS NMN	

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,140	HOCTOR ET AL.	
	Examiner	Art Unit	
	Meless N. Zewdu	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-4 and 7-21* is/are rejected.

7)☒ Claim(s) *5 and 6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to the communication filed on 11/21/05.

2. Claims 1-21 are pending in this action.

3. Rejection is based on a newly discovered prior art issued to Watters et al. (US 6,230,018 B1).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (Chen) (US 6,522,882 B1) in view of Watters et al. (Watters) (US 6,230,018 B1).

Regarding claim 1, Chen et al. discloses a method for determining a location of an object within an area of interest (abstract, fig. 1), comprising:

transmitting an RF signal from the object to at least three receivers (at least some or plurality of cell sites) (abstract, fig. 1, col. 5 lines 9-53);

calculating, at each of the at least three receivers, time difference of arrival information based on the signal from said at least one beacon transmitter and the RF signal transmitted from the object (abstract, fig. 1, col. 5 lines 34-53); and

determining a location of the object within said area of interest based on said time difference of arrival information (col. 5 lines 34-37). But, Chen does not explicitly teach about at least one beacon transmitter being at a known location and transmitting a signal to the at least three receivers, as claimed by applicant. However, in a related field of endeavor, Watters teaches about a technique for enhancing the accuracy of TDOA location determination for a mobile terminal through the use of calibration terminals that are provided at known locations within the coverage area of the network (see fig. 3; col. 4, line 43-col. 5, line 28). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Chen with that of Watters for the advantage of measuring time of arrival differences to a sufficient resolution to locate a mobile terminal with the desired position accuracy (see col. 1, lines 43-48).

Regarding claim 4, Chen et al. further discloses the method of claim 1 wherein the step of determining a location of the object comprises using a maximum likelihood algorithm (when calculating the location of the mobile transceiver from the respective location of each of the at least some of the plurality of cell sites and respective times at which the beacon signal was received at each of the at least some of the plurality of cell sites which means it using a maximum likelihood algorithm) (abstract).

Regarding claim 13, Chen et al. discloses a system for determining a location of an object within an area of interest (abstract, fig. 1), comprising:

a) a mobile device carried by said object (abstract, #18 fig. 1, col. 5 lines 9-53), said mobile device including a transmitter for transmitting an RF signal (#18 fig. 1);

c) at least three base stations within said area of interest (abstract), each of said at least three base stations comprising a detector for detecting the RF signal transmitted from said mobile device (col. 1 line 40-47), and further comprising a processor for deriving time difference of arrival information based on the beacon signal and the RF signal (col. 3 lines 40-67); and

d) a controller for determining the location of the object within said area of interest based on the time difference of arrival information calculated by each of the three base stations (col. 5 lines 34-53). But, Chen does not explicitly teach about at least one beacon transmitter being at a known location and transmitting a beacon signal, as claimed by applicant. However, in a related field of endeavor, Watters teaches about a technique for enhancing the accuracy of TDOA location determination for a mobile terminal through the use of calibration terminals that are provided at known locations within the coverage area of the network (see fig. 3; col. 4, line 43-col. 5, line 28). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Chen with that of Watters for the advantage of measuring time of arrival differences to a sufficient resolution to locate a mobile terminal with the desired position accuracy (see col. 1, lines 43-48).

Claims 2-3, 7-12, and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Watters and further in view of Richards et al. (6,466,125).

Regarding claim 2, Chen et al. further discloses the method of claim 1, wherein said RF signal comprises a signal (abstract). However, Chen in view of Watters does not specifically disclose RF signal comprises a frequency ultra-wideband signal.

Richards et al. teaches the RF signal comprises a frequency ultra-wideband signal (col. 4 line 4-8). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to further modify Chen in view of Watters with the teaching of Richards et al. of the RF signal comprises a frequency UWB in order to determine the location of the patient in the area of interest.

Regarding claim 3, Richards et al. further discloses the method of claim 2, wherein said ultra-wideband signal comprises a transmitted-reference ultra-wideband signal (col. 31 line 21 thru col. 37 line 25).

Regarding claim 7, Richards et al. further discloses the method of claim 2, wherein said ultra-wideband signal comprises a transmitted-reference, delayed hopped ultra-wideband signal (col. 11 line 8-67); and wherein the step of transmitting a transmitted-reference, delayed hopped ultra-wideband signal comprises generating pairs of pulses separated by a time interval D and encoding by relative polarity of pulses of said pairs (col. 11 line 8-67); and wherein the step of calculating time difference of arrival information comprises delaying received signals by the time interval D (col. 13 line 65 thru col. 14 line 11).

Regarding claim 8, Richards et al. further discloses the method of claim 7 wherein the step of transmitting further comprises generating the pairs of pulses at a pulse repetition rate which is variable in order to shape a spectrum of transmission (fig. 4, col. 6 line 17-35).

Regarding claim 9, Richards et al. further discloses the method of claim 7 wherein transmitted-reference, delayed hopped ultra-wideband signals are transmitted from a plurality of objects, each transmitted-reference, delayed hopped ultra-wideband (impulse) signal having a different time interval D between pulses of said pairs (col. 6 line 17 thru col. 7 line 38).

Regarding claim 10, Richards et al. further discloses the method of claim 2, wherein the step of transmitting the ultra-wideband signal is performed by a transmitter carried by a patient, and wherein said area of interest is a medical facility (abstract).

Regarding claim 11, Richards et al. further discloses the method of claim 9, wherein the step of transmitting the ultra-wideband signal further includes transmitting medical information of said patient with the ultra-wideband signal (fig. 12, col. 21 lines 53-63).

Regarding claim 12, Richards et al. further disclose the method of claim 2, wherein the step of transmitting the ultra-wideband signal is performed by a transmitter attached to patient, and wherein said area of interest is a medical facility (abstract, fig. 10-13, col. 19 lines 56-64). However, Richards et al. does not specifically disclose the transmitter attached to equipment. But, it would have been obvious to one skilled in the

art that the device can be used to attach to the equipment in order to monitor the equipment from removing.

Regarding claim 14, this claim is rejected for the same reason as set forth in claim 2.

Regarding claim 15, this claim is rejected for the same reason as set forth in claim 3.

Regarding claim 16, Richards et al. further discloses the system of claim 13, wherein said ultra-wideband signal comprises a transmitted reference, delayed hopped ultra-wideband signal (col. 11 line 8-67), and said detector comprises a pulse-pair correlator (fig. 2, col. 4 lines 38-67).

Regarding claim 17, this claim is rejected for the same reason as set forth in claim 8.

Regarding claim 18, Chen et al. further discloses the system of claim 13. However, Chen et al. does not specifically disclose wherein a plurality of mobile devices transmit RF signals to the at least three base stations, each of the three base stations comprising a plurality of detectors for detecting the RF signals and deriving time difference of arrival information based on the beacon signal and the RF signals, said controller determining locations of said objects based on said time difference of arrival information.

Richards et al. teaches a plurality of mobile devices transmit RF signals to the at least three base stations (fig. 1-6, col. 8 line 56 thru col. 12 line 18), each of the three base stations comprising a plurality of detectors for detecting the RF signals and

deriving time difference of arrival information based on the beacon signal and the RF signals, said controller determining locations of said objects based on said time difference of arrival information (abstract, fig. 2, col. 9 line 43 thru col. 10 line 13). Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the Chen et al. system with the teaching of Richards et al. of plurality of mobile devices transmit RF signals to at least three base stations in order to determine locations of the objects to keep them in control monitoring.

Regarding claim 19, this claim is rejected for the same reason as set forth in claim 10.

Regarding claim 20, this claim is rejected for the same reason as set forth in claim 11.

Regarding claim 21, this claim is rejected for the same reason as set forth in claim 12.

Allowable Subject Matter

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Note: claim 6 is objected (indicated allowable) because of its dependency on claim 5.

Response to Arguments

Applicant's arguments with respect to claims 1-4 and 7-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N. Zewdu whose telephone number is (571) 272-7873. The examiner can normally be reached on 8:30 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is (571) 272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Meless zewdu M.Z

Examiner

31 January 2006.

WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600